

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method of writing an optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, the method comprising the step of:

preventing a write operation to a portion of said second storage layer located below a maiden portion of said first storage layer,

wherein said step of preventing a write operation to a portion of said second storage layer comprises:

defining said portion as being defective

wherein a distinction is made between truly defective storage blocks and storage blocks which are merely temporarily defined as being defective.

2. (Previously presented) The method as claimed in claim 1,

wherein writing to the second storage layer is prevented until the first storage layer has been completely written.

3. (Previously presented) The method as claimed in claim 1, wherein said method further comprises the step of:

allowing a write operation to a portion of the second storage layer if a sufficiently large portion of the first storage layer, overlying said second storage layer portion, has been written at least once, said portion of the first storage layer being smaller than the total first storage layer.

4. (Cancelled).

5. (Cancelled)

6. (Previously presented) A method of formatting an optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, in which access to the second storage layer is through the first storage layer, the method comprising the steps of:

defining logical disc addresses for logical blocks of the storage space;

defining a reserved storage space in the storage space;

defining a defect list and storing the defect list in a predetermined portion of the reserved storage space; and

incorporating into the defect list addresses of all blocks which are physically located in the second storage layer irrespective of whether these blocks have any defects.

7. (Previously presented) The formatting method as claimed in claim 6, wherein said method further comprises the steps of:

defining a defect type list and storing the defect type list in a predetermined portion of the storage space, said predetermined portion being a portion of the reserved storage space; and

writing into the defect type list, in respect of the blocks which are physically located in the second storage layer, a virtually defective code indicating that these blocks are only virtually defective.

8. (Previously presented) The formatting method as claimed in

claim 6 or 7, wherein said method further comprises the step of:

writing disc address information regarding the relation between physical disc addresses and logical disc addresses into a predetermined portion of the reserved storage space.

9. (Previously presented) A multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first storage layer, in which access to the second storage layer is through the first storage layer, the disc containing a defect list in a predetermined portion of a reserved storage space, the physical disc addresses of all blocks which are physically located in the second storage layer and which are located below a maiden portion of said first storage layer all being incorporated in said defect list irrespective of whether these blocks have any defects.

10. (Previously presented) The multi-layered optical disc as claimed in claim 9, wherein said multi-layered optical disc further contains a defect type list in a predetermined portion of the storage space, wherein, in respect of those blocks which are

physically located in the second storage layer and which are located below a maiden portion of said first storage layer, the defect type list contains a virtually defective code indicating that these blocks are only virtually defective.

11. (Previously presented) The multi-layered optical disc as claimed in claim 9 or 10, wherein said multi-layered optical disc further contains disc address information regarding the relation between physical disc addresses and logical disc addresses in a predetermined portion of the reserved storage space.

12. (Currently amended) A disc drive system, capable of controlling a rotating means and a light beam generating means of an optical disc drive, suitable for writing a multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, in which access to the second storage layer is through the first storage layer, the disc drive system being adapted to perform a formatting operation ~~in accordance with claim 6~~ comprising:

defining logical disc addresses for logical blocks of the

storage space;

defining a reserved storage space in the storage space;

defining a defect list and storing the defect list in a
predetermined portion of the reserved storage space; and

incorporating into the defect list addresses of all blocks
which are physically located in the second storage layer
irrespective of whether these blocks have any defects.

13. (Currently amended) A disc drive system, capable of controlling a rotating means and a light beam generating means of an optical disc drive, suitable for writing a multi-layered optical disc ~~according to claim 9~~, the disc drive system being adapted to:

write to said multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first storage layer, in which access to the second storage layer is through the first storage layer, the disc containing a defect list in a predetermined portion of a reserved storage space, physical disc addresses of all blocks which are physically located in the second storage layer and which are located below a maiden portion of said first storage layer all

being incorporated in said defect list irrespective of whether
these blocks have any defects; and

_____ read the defect list from said multi-layered optical disc and
to communicate the defect list to a file system.

14. (Previously presented) The disc drive system as claimed in claim 13, wherein said multi-layered optical disc further contains a defect type list in a predetermined portion of the storage space, wherein, in respect of those blocks which are physically located in the second storage layer and which are located below a maiden portion of said first storage layer, the defect type list contains a virtually defective code indicating that these blocks are only virtually defective, and wherein said disc drive system is also adapted to read the defect type list from said multi-layered optical disc and to communicate the defect type list to a file system.

15. (Previously presented) The disc drive system as claimed in claim 13 or 14, wherein said multi-layered optical disc further contains disc address information regarding the relation between

physical disc addresses and logical disc addresses in a predetermined portion of the reserved storage space, and wherein said disc drive system is further adapted to read the disc address information from said multi-layered optical disc and to communicate the disc address information to a file system.

16. (Previously presented) The disc drive system according to any one of the claims 12 to 14, wherein the disc drive system is adapted to check, after having written a maiden portion of said first storage layer, whether said first storage layer has been written completely, to maintain the defect list if said check reveals that said first storage layer has not yet been written completely and, alternatively, if said check reveals that said first storage layer has been written completely, to remove from said defect list all logical addresses of blocks which are physically located in said second storage layer.

17. (Previously presented) The disc drive system according to any one of the claims 12 to 14, wherein the disc drive system is adapted, after having written to a maiden portion of said first

storage layer, to remove from said defect list physical disc addresses of blocks which are physically located in a portion of said second storage layer located below said written maiden portion of said first storage layer.

18. (Previously presented) The disc drive system as claimed in claim 17, wherein the disc drive system is adapted, when calculating which physical disc addresses are to be removed from said defect list, to take into account various properties of the multi-layered optical disc and of a disc drive concerned.

19. (Previously presented) The disc drive system as claimed in claim 16, wherein said disc drive system is adapted to read the defect type list from said disc, and is also adapted, when determining which physical disc addresses are to be removed from said defect list, to take into account the codes stored in the defect type list, such that blocks which are truly defective are maintained in the defect type list.

20. (Currently amended) A file system, designed for communicating

with a disc drive system of an optical disc drive, and designed for handling the writing of user files to the disc and the reading of user files from the disc, the file system being provided with a memory and being adapted to receive from a disc drive system ~~according to claim 14, a defect list and to store this defect list into said memory~~ capable of controlling a rotating means and a light beam generating means of an optical disc drive, suitable for writing a multi-layered optical disc, the disc drive system being adapted to:

write to said multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first storage layer, in which access to the second storage layer is through the first storage layer, the disc containing a defect list in a predetermined portion of a reserved storage space, physical disc addresses of all blocks which are physically located in the second storage layer and which are located below a maiden portion of said first storage layer all being incorporated in said defect list irrespective of whether these blocks have any defects; and

read the defect list from said multi-layered optical disc and

to communicate the defect list to a file system, the file system also being adapted to take the defect list into account when choosing logical disc addresses in response to a command to store a file.

21. (Previously presented) The file system as claimed in claim 20, wherein said multi-layered optical disc further contains disc address information regarding the relation between physical disc addresses and logical disc addresses in a predetermined portion of the reserved storage space, and wherein said disc drive system is further adapted to read the disc address information from said multi-layered optical disc and to communicate the disc address information to a file system, and wherein the file system is also adapted to receive from the disc drive system disc address information and to store this disc address information in said memory, the file system also being adapted to take the disc address information into account when choosing logical disc addresses in response to a command to store a file.

22. (Previously presented) The method as claimed in any one of

the claims 1 to 3, wherein said step of preventing a write operation to a portion of the second storage layer further comprises defining said portion as being occupied.

23. (Previously presented) A method of formatting an optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, access to the second storage layer being through the first storage layer, the method comprising the steps of:

- defining logical disc addresses for logical blocks of the storage space;

- defining a reserved storage space in the storage space;

- defining a write history table and storing the write history table in a predetermined portion of the storage space, said predetermined portion of the storage space being a predetermined portion of the reserved storage space; and

- writing into the write history table, in respect of all blocks of the storage space, a code having a first value indicating that these blocks are still maiden.

24. (Previously presented) A multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, access to the second storage layer being through the first storage layer, the disc containing a write history table in a predetermined portion of the storage space, preferably in a predetermined portion of the reserved storage space, the write history table containing, in respect of the physical disc addresses of each block, at least of those blocks which are physically located in the first storage layer, a code having a first value in respect of blocks which are maiden and a second value in respect of blocks which have been written at least once.

25. (Currently amended) A disc drive system, capable of controlling a rotating means and a light beam generating means of an optical disc drive, suitable for writing a multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, access to the second storage layer being through the first storage layer, the disc drive system being adapted to perform ~~the~~

method of formatting as claimed in claim 23 acts of:

defining logical disc addresses for logical blocks of the storage space;

defining a reserved storage space in the storage space;

defining a write history table and storing the write history table in a predetermined portion of the storage space, said predetermined portion of the storage space being a predetermined portion of the reserved storage space; and

writing into the write history table, in respect of all blocks of the storage space, a code having a first value indicating that these blocks are still maiden.

26. (Currently amended) A disc drive system capable of controlling a rotating means and a light beam generating means of an optical disc drive, said disc drive system being suitable for writing a multi-layered optical disc ~~as claimed in claim 24~~having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, access to the second storage layer being through the first storage layer, the disc containing a write history table in a predetermined portion of the

storage space, preferably in a predetermined portion of the reserved storage space, the write history table containing, in respect of the physical disc addresses of each block, at least of those blocks which are physically located in the first storage layer, a code having a first value in respect of blocks which are maiden and a second value in respect of blocks which have been written at least once, the disc drive system being adapted to read the write history table from said disc and to store said write history table into a memory.

27. (Previously presented) The disc drive system as claimed in claim 26, wherein said disc drive system is also adapted to communicate the write history table to a file system.

28. (Previously presented) The disc drive system as claimed in claim 26 or 27, the disc drive system being adapted, at least after having written a maiden portion of said first storage layer, to write into the write history table, in respect of all blocks which have been written in the writing operation, a code having a second value indicating that these blocks have been written at least once.

29. (Currently amended) A file system, designed for communicating with a disc drive system of an optical disc drive, and for handling the writing of user files to the disc and the reading of user files from the disc, the file system being provided with a memory, being adapted to receive from a disc drive system ~~according to claim~~ 27capable of controlling a rotating means and a light beam generating means of an optical disc drive, said disc drive system being suitable for writing a multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, access to the second storage layer being through the first storage layer, the disc containing a write history table in a predetermined portion of the storage space, preferably in a predetermined portion of the reserved storage space, the write history table containing, in respect of the physical disc addresses of each block, at least of those blocks which are physically located in the first storage layer, a code having a first value in respect of blocks which are maiden and a second value in respect of blocks which have been written at least once, the disc drive system being adapted to read

the write history table from said disc and to store said write history table into a memory, the file system being further adapted to receive from the disc drive system a write history table and to store this write history table into said memory, and also being adapted to take the write history table into account when choosing logical disc addresses in response to a command to store a file.

30. (Previously presented) The file system as claimed in claim 29, wherein said file system also is adapted to define a system file with a predetermined name, such that this system file occupies all logical addresses of blocks which are physically located in said second storage layer.

31. (Previously presented) A multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, access to the second storage layer being through the first storage layer, the disc containing a file allocation list in a predetermined portion of a reserved storage space, the file allocation list containing at least one system file with a predetermined name, of which it is

specified that it occupies all blocks which are physically located in the second storage layer and are located below a maiden portion of said first storage layer.

32. (Previously presented) The file system according to claim 30, designed for handling the writing and the reading of user files to or from a multi-layered optical disc having a multi-layered storage space comprising at least a first storage layer and a second storage layer below the first layer, access to the second storage layer being through the first storage layer, the disc containing a file allocation list in a predetermined portion of a reserved storage space, the file allocation list containing at least one system file with a predetermined name, of which it is specified that it occupies all blocks which are physically located in the second storage layer and are located below a maiden portion of said first storage layer, wherein said file system is further adapted, after a write operation, to receive from the disc drive system the updated write history table and to update the file allocation list accordingly with respect to said system file with a predetermined name, such that logical addresses of blocks which are

physically located in a portion of said second storage layer located below said written maiden portion of said first storage layer are removed from said file allocation list.

33. (Previously presented) The method as claimed in any one of the claims 1 to 3, wherein said method further comprises the step of:

defining a write allowability table comprising in respect of each block, that is, at least in respect of the blocks physically located in the second storage layer, a code indicating whether or not it is allowed to write in such block, of setting the code to a first predetermined value in respect of those blocks in the second storage layer which are located below a maiden portion of the first second storage layer, a write operation to a block being prevented if the corresponding code in the write allowability table has said first predetermined value.

34. (Previously presented) The method as claimed in claim 33, wherein, after a maiden portion of said first storage layer has been written, in respect of those codes in the write allowability

table which correspond to blocks located below said written maiden portion of said first storage layer, the value is set to a second predetermined value indicating that writing is now allowed.

35. (Previously presented) The disc drive system as claimed in claim 25, wherein the disc drive system is adapted to calculate a write allowability table on the basis of the write history table, and to communicate said write allowability table to a file system.

36. (Previously presented) A file system, designed for communicating with a disc drive system of an optical disc drive and designed for handling the writing of user files to the disc and the reading of user files from the disc, the file system being provided with a memory and being adapted to receive, from a disc drive system as claimed in claim 35, a write allowability table and to store this write allowability table into said memory, and also being adapted to take the write allowability table into account when choosing logical disc addresses in response to a command to store a file.

37. (Cancelled)